

CLAIMS

What is claimed is:

- 5        1.    A method for exposure control, comprising the  
         steps of:  
             determining a number of clipped pixels from an  
             image scene for one or more of a set of possible  
             exposures;
- 10        determining a selected exposure from the  
         possible exposures such that the possible exposures  
         higher than the selected exposure increase the number  
         and the possible exposures less than the selected  
         exposure do not substantially decrease the number.
- 15        2.    The method of claim 1, wherein for each possible  
         exposure the step of determining a number of clipped  
         pixels comprises the steps of:  
             measuring an amplitude of each of a set of  
20        pixels in the image scene;  
             generating a histogram of a number of the pixels  
             from the image scene verses the corresponding  
             amplitude;
- 25        detecting a jump in the number of pixels at a  
         high pixel amplitude.
- 30        3.    The method of claim 1, wherein the step of  
         determining a number of clipped pixels comprises the  
         steps of:  
             setting a starting exposure and determining the  
             number of clipped pixels from the image scene for the  
             starting exposure;

5        setting a series of decreased exposures and  
determining the number of clipped pixels from the  
image scene for the decreased exposures.

determining a subset of the possible exposures  
for which the number is relatively unchanged;

determining a first one of the possible exposures higher than the subset for which the number increases.

5. An apparatus for exposure control, comprising:  
means for determining a number of clipped pixels  
from an image scene for one or more of a set of  
possible exposures;

means for determining a selected exposure from the possible exposures such that the possible exposures higher than the selected exposure increase the number and the possible exposures less than the selected exposure do not substantially decrease the number.

6. The apparatus of claim 5, wherein for each possible exposure the means for determining a number of clipped pixels comprises:

means for measuring an amplitude of each of a set of pixels in the image scene;

means for generating a histogram of a number of the pixels from the image scene verses the corresponding amplitude;

5 means for detecting a jump in the number of pixels at a high pixel amplitude.

7. The apparatus of claim 5, wherein the means for determining a number of clipped pixels comprises:

10 means for setting a starting exposure and determining the number of clipped pixels from the image scene for the starting exposure;

15 means for setting a series of increased exposures and determining the number of clipped pixels from the image scene for the increased exposures;

setting a series of decreased exposures and determining the number of clipped pixels from the image scene for the decreased exposures.

20 8. The apparatus of claim 5, wherein the means for determining a selected exposure comprises:

means for determining a subset of the possible exposures for which the number is relatively unchanged;

25 means for determining a first one of the possible exposures higher than the subset for which the number increases.

9. A digital camera, comprising:

30 image sensor;

exposure mechanism that provides a set of possible exposures to the image sensor from an image scene;

image processor that determines a number of  
clipped pixels from the image scene for one or more  
of the possible exposures and that determines a  
selected exposure from the possible exposures such  
5 that the possible exposures higher than the selected  
exposure increase the number and the possible  
exposures less than the selected exposure do not  
substantially decrease the number.

10 10. The digital camera of claim 9, wherein the image  
processor determines the number of clipped pixels by  
using the image sensor to measure an amplitude of  
each of a set of pixels in the image scene and then  
generating a histogram of a number of the pixels from  
15 the image scene verses the corresponding amplitude  
and then detecting a jump in the number of pixels at  
a high pixel amplitude.

20 11. The digital camera of claim 9, wherein the image  
processor determines the number of clipped pixels by  
setting a starting exposure using the exposure  
mechanism and then determining the number of clipped  
pixels from the image scene for the starting exposure  
and setting a series of increased exposures and  
25 decreased exposures using the exposure mechanism  
while determining the number of clipped pixels from  
the image scene.

30 12. The digital camera of claim 9, wherein the image  
processor determines a selected exposure by  
determining a subset of the possible exposures for  
which the number is relatively unchanged and by  
determining a first one of the possible exposures

higher than the subset for which the number increases.

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